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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,557	07/18/2003	David J. Young	1391-39000	4807
46133	7590	08/30/2006	EXAMINER	
CONLEY ROSE, P.C.			CHANG, JOSEPH	
PO BOX 3267			ART UNIT	
HOUSTON, TX 77253-3267			PAPER NUMBER	
			2817	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/622,557	Applicant(s) YOUNG ET AL.	
	Examiner Joseph Chang	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2006.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,32,34-36,38-42,56,57 and 59-61 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-6,32,34-36,38-42,56,57 and 59-61 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 2 is objected to because of the following informalities: the term “temperature calculation circuit” is not consistent with the term used in the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-6, 40 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation “a temperature calculation circuit” in claim 2 needs to be clarified because of the limitation “mixer” in claim 1. The specification/drawings does not support having both limitations - “a temperature calculation circuit” and “a mixer”.

In claim 6, the recitations “the counter” and “the storage device” lack an antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 32, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammond US 3,826,931.

Hammond discloses in Figure 2 a clock source having two crystals, two oscillators (10, 20, 14, 24) having two different temperature coefficient connecting to a mixer (28) producing sum and difference of the two frequencies from the oscillators, and filtering out the sum using a filter (30).

Although Hammond does not expressly disclose a spectrum analyzer coupled to the mixer to provide a spectral analysis of the difference signal, it is suggested to have some kind of spectrum analyzer be used to verify the output frequency of the device of Hammond for substantially zero temperature coefficient of frequency. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a spectrum analyzer because such a modification would have provided the benefit of analyzing and verifying the output frequency of the device of Hammond for substantially zero temperature coefficient of frequency.

As for the "downhole" clock source in claim 1, the recitation "downhole" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness.

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Claims 34-36, 38, 40-42, 56-57, 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammond US 3,826,931 in view of Vig.

Regarding 34, 56 and 57, as noted above in claim 32 rejection, Hammond discloses a clock source as recited in the claim except a storage device storing an indication of the frequency behavior of the oscillators or a counter to count the frequency of the oscillator for digitally controlling the frequency that is proportional to the temperature of the crystals.

Vig discloses in page 2-20 a MCXO frequency summing method and shows that a counter and memory to digitally control the frequency that is proportional to the temperature of the crystals. As seen in Vig, such a method would have been well known in the art at the time of the invention and therefore it would have been obvious to one of ordinary skill in the art to digitally control the frequency that is proportional to the temperature of the crystals.

Regarding claim 35, such a method (storing occurs prior to deployment downhole) would have been obvious because it would have been a common practice in downhole deployment operation at the time of the invention.

Regarding claims 36, Hammond discloses compensating the first signal's (14) frequency according to the temperature of the crystals (col. 4, lines 5-10).

Regarding claim 38, Hammond discloses an insulated shield (26) which is for maintaining the temperature of the crystals

Regarding claims 40-42, 59-61 such a method would have been obvious to one of ordinary skill in the art because Vig shows Page 2-20 a MCXO frequency summing method which include a single counter that maintaining a

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count value. And whether incrementing or incrementing the count value proportional to the temperature of the crystal would have been obvious to one of ordinary skill in the art because such movements are necessary in order to maintain the count value. The figure in page 2-20 shows beat frequency f_b in counter which corresponds to the net count value proportional to the temperature of the crystals.

Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammond US 3,826,931 in view of Gunawardana et al.

As noted above in claim 32 rejection, Hammond discloses a clock source as recited in the claim except a method of maintaining the temperature of the crystals within a range of temperatures over which the first signal's frequency is substantially stable with respect to temperature.

Gunawardana et al teaches such a method of maintaining the temperature. As seen in Gunawardana et al, such a method would have been well known in the art at the time of the invention and therefore it would have been obvious to one of ordinary skill in the art to maintain the temperature so that the output frequency be stable and therefore it would have been obvious to one of ordinary skill in the art to use such method to maintain the temperature of the crystals.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Beaudin et al., Kuwabara, Ogasawara et al., and Haysashi

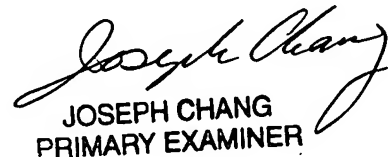
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disclose two crystals in an oven to compensate frequency based on the temperature changes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JOSEPH CHANG
PRIMARY EXAMINER